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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/717,143 | 11/22/2000 | Akihiko Harada | 001545 | 2927 |

23850 7590 07/25/2002

ARMSTRONG, WESTERMAN & HATTORI, LLP
1725 K STREET, NW.
SUITE 1000
WASHINGTON, DC 20006

EXAMINER

SEFER, AHMED N

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2826

DATE MAILED: 07/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------|---------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/717,143 | HARADA ET AL. | |
| | Examiner | Art Unit | |
| | A. Sefer | 2826 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 6-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4 and 5 is/are rejected.
- 7) ☒ Claim(s) 1-3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on 5/20/2002 has been entered.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: There is insufficient antecedent basis for the following limitations: "the gate insulating film" recited in claim 1; and "that first conductivity type body contact region" recited in claims 2 and 3.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily

published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Houston US Patent No. 5,095,348.

Houston discloses (see figs. 1-9, col. 7, lines 20-42 and claims 1-3) an insulated gate type semiconductor device comprised of a semiconductor layer serving as an active region isolated from a semiconductor substrate by a substrate isolation insulating film, wherein a gate electrode of an L-shape 242 comprised of a trunk-shaped main gate electrode and a crosspiece-shaped conductor pattern is provided and a body contact region 246 and a drain region 252 isolated through said crosspiece-shaped conductor pattern, said body contact region being made the same potential as a source region 254.

5. Claims 4 is rejected under 35 U.S.C. 102(e) as being anticipated by Erstad US Patent No. 6,307,237.

Erstad discloses (see figs. 5-8 and col. 9, lines 29-37) an insulated gate type semiconductor device comprised of a semiconductor layer serving as an active region 302 isolated from a semiconductor substrate by a substrate isolation insulating film 383, wherein a gate electrode of asymmetric T-shape comprised of a trunk-shaped main gate electrode and a crosspiece-shaped conductor pattern or L-shaped gate electrode with trunk 117 and crosspiece 118 is provided and a body contact region 332 and a drain region 326 isolated through said crosspiece-shaped conductor pattern, said body contact region being made the same potential as a source region 330.

6. Claim 5 is rejected under 35 U.S.C. 102(e) as being anticipated Pennings et al. US Patent No. 6,154,091.

Pennings et al disclose in figs. 4-7 an insulated gate type semiconductor device comprised of a semiconductor layer serving as an active region isolated from a semiconductor substrate by a substrate isolation insulating film, wherein a gate electrode of an L-shape comprised of a trunk-shaped main gate electrode 10 extending in parallel with respect to said semiconductor substrate, and a crosspiece-shaped conductor pattern 12 extending in parallel with respect to said semiconductor substrate and also extending toward the width direction of said main gate electrode is provided and at least part of said crosspiece-shaped conductor pattern function as a gate electrode.

7. Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated Eimori et al. US Patent No. 5,637,899

Eimori et al disclose in figs. 14 and 21-29 an insulated gate type semiconductor device comprised of a semiconductor layer 22 serving as an active region isolated from a semiconductor substrate by a substrate isolation insulating film 21, wherein a gate electrode 17 of L-shape comprised of a trunk-shaped main gate electrode extending in parallel with respect to said semiconductor substrate, and a crosspiece-shaped conductor pattern extending in parallel with respect to said semiconductor substrate and also extending toward the width direction of said main gate electrode is provided and at least part of said crosspiece-shaped conductor pattern function as a gate electrode.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bryant et al. US Patent No. 6,100,564 in view Houston US Patent No. 5,498,882.

Bryant et al disclose in figs. 4 and 5 an insulated gate type semiconductor device comprised of a semiconductor layer 103 serving as an active region isolated from a semiconductor substrate by a substrate isolation insulating film 102, wherein a gate electrode of T-shape comprised of a trunk-shaped main gate electrode 112 extending in parallel with respect to said semiconductor substrate, and a crosspiece-shaped conductor pattern 114 extending in parallel with respect to said semiconductor substrate and also extending toward the width direction of said main gate electrode is provided and at least part of said crosspiece-shaped conductor pattern function as a gate electrode.

Houston discloses in fig. 3 an asymmetric gate electrode of T-shape comprised of a trunk-shaped main gate electrode extending in parallel with respect to a semiconductor substrate, and a crosspiece-shaped conductor pattern extending in parallel with respect to said semiconductor substrate and also extending toward the width direction of said main gate electrode is provided and at least part of said crosspiece-shaped conductor pattern function as a gate electrode.

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Therefore, it would have been obvious to one skilled in the art at the time the invention was made to use asymmetric gate electrode of T-shape, sine that would reduce gate capacity.

Allowable Subject Matter

10. Claims 1-3 are objected, but would be allowable if rewritten or amended to overcome the objections.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tyson US Patent No. 5,317,181 discloses an SOI device having an L-shape gate electrode.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (703) 605-1227.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on (703) 308-6601.

ANS
July 19, 2002

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

